

ALTITUDE TRAINING VS HEAT ACCLIMATISATION

TRAINING AT ALTITUDE (SIMULATED / ACTUAL)

TRAINING IN THE HEAT (THERMOREGULATION)

What are the current recommendations?

- Optimal altitude range 2000 to 2500m (Arizona 2134m)
- 21-28 days exposure required
- Minimum >12-18 hrs per day (18-22hrs ave)
- Exercise oxygen saturation <80%
- Simulated hypoxic training (2350m / 14% O₂)
- Temp >36°C / Humidity >50%
- 7-14 days exposure
- 90-100 min per day (10 days in a row)
- 90min every 3rd day (30 days exposure)
- Exercise intensity approx 50% VO₂ max

What are the reported benefits?

- Erythropoiesis (↑ EPO)
- ↑Red blood cell count and mass / haemoglobin
- ↑lactate clearance or ↓lactate production
- ↑metabolism
- Improved fitness (aerobic & anaerobic)
- ↑O₂ to muscle / ↑lactate buffering
- Benefits maintained 12-28 days(variable)
- ↑Plasma volume (3-6 days)
- ↓HR during exercise (3-6 days)
- ↓Loss of salt in sweat (5-10 days)
- ↑Sweat sensitivity (sweat sooner)
- ↑blood flow to skin (↑cooling effect)
- ↑ endurance(aerobic & anaerobic)
- Benefits maintained 10-28 days

How does this help performance?

- Improved Aerobic performance / cardiovascular fitness
- ↑oxygen to muscle = ↑ aerobic capacity
- Improved repeated high intensity effort ability
- ↑fat loss
- ↑recovery rate / rehabilitation
- ↑Oxygen to muscle = ↑ aerobic capacity
- Improved cardiovascular efficiency
- Maintained electrolyte balance
- ↑body internal cooling effect
- ↑glycogen sparing = ↑high intensity ex

What are the disadvantages or risks?

- Responders and non-responders (doesn't work for everyone)
- Altitude (mountain) sickness
- Training intensity may ↓ at altitude
- 25% greater energy demands vs sea level
- ? Impact on the immune system / ? risk of illness
- Heat illness if do too much too soon
- ↑Dehydration risk during training
- Cumulative dehydration risk during week
- Need right temp and humidity to work

Performance Considerations

- Physiological adaptation with ↓ training volume
- Integrated for fitness 'Top Ups' and ↓skinfolds
- Used in rehab to aid with return to fitness
- Implementation into individual training as appropriate
- Natural climate for performance
- Natural maintenance of Alt benefits
- Acclimatisation provides adv in comp
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